

CLAIMS

We claim:

1. An anastomotic connector for coupling a graft having proximal and distal extremities and having a lumen extending therethrough from the proximal extremity to the distal extremity to a side wall of a vessel or organ having outer and inner surfaces and having a lumen therein and having an opening in the side wall in communication with the lumen in the vessel or organ comprising an elongate device having proximal and distal extremities, the proximal extremity of the elongate device having a first fixation mechanism adapted to secure the proximal extremity of the elongate device to the distal extremity of the graft, the distal extremity of the elongate device having a second fixation mechanism adapted to secure the distal extremity of the elongate device into the opening in the side wall of the vessel or organ, said second fixation mechanism comprising first and second portions generally overlying each other in spaced apart positions to provide a space to receive a portion of the side wall defining the opening and engaging the inner and outer surfaces of the side wall to aid in retaining the second fixation mechanism in engagement with the side wall, said second fixation mechanism also comprising a third portion extending in a direction away from the first and second portions and being adapted to be engaged by the outer surface of a portion of the side wall defining the opening and a fourth portion movable between free and out-of-the way positions and in a free position extending generally in a direction away from the first and second portions and lying in a plane generally parallel to the first and second portions and being adapted to engage the inner surface of a portion of the side wall defining the opening and generally underlying the third portion to also aid in retaining the second fixation mechanism in engagement with the side wall defining the opening whereby the device causes to be formed a substantially liquid-tight connection between the graft and the vessel or organ and permits liquid flow between the lumen in the vessel or organ and the lumen in the graft, said fourth portion of the second fixation mechanism being deflectable

from the free position to the out-of-the way position to aid in inserting the distal extremity of the elongate device into the opening in the side wall of the vessel or organ.

2. An anastomotic connector as in claim 1 wherein said device is unitary.

3. An anastomotic connector as in claim 2 wherein said elongate device is formed of a single piece of material.

4. An anastomotic connector as in claim 3 wherein said piece of material is a tubular member.

5. An anastomotic connector as in claim 3 wherein said material is a nickel titanium alloy.

6. An anastomotic connector as in claim 1 wherein the elongate device is constructed so that the graft extends at an angle of about 20 degrees to 70 degrees with respect to the lumen in the vessel or organ when the graft is coupled to the side wall of the vessel or organ.

7. An anastomotic connector as in claim 1 wherein the device includes a hinge portion adjoining the fourth portion.

8. An anastomotic connector as in claim 1 wherein said second portion has a rounded toe-like conformation to facilitate entry of the device into the opening in the side wall and into the lumen of the vessel or organ.

9. An anastomotic connector as in claim 1 wherein said elongate device has a surface area provided by interconnected links that are adapted to engage the inner surface of the wall having spaces therebetween.

10. An anastomotic connector as in claim 9 wherein the links extend throughout the elongate device.

11. An anastomotic connector as in claim 9 wherein the inner surface defining the lumen in the vessel or organ has an inner surface area and wherein the surface area provided by the interconnected links adapted to engage the inner surface area is no greater than 5% to 35% of the inner surface area in alignment with elongate device.

12. An anastomotic connector as in claim 9 for use with a vessel or organ and a graft in which blood is to flow in accordance with the pumping action of a heart wherein said links are configured so that they are capable of flexing with the wall of the organ or vessel as the wall moves under the pumping action of the heart causing flow of blood through the lumen in the vessel or organ.

13. An anastomotic connector as in claim 12 wherein said links are capable of accommodating radial expansions and compression of the wall and axial extension and retraction in the wall.

14. An anastomotic connector as in claim 12 wherein said links are capable of accommodating axial movement in the wall.